

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Appeal No.: 2005-1528

Serial No.: 09/528,262

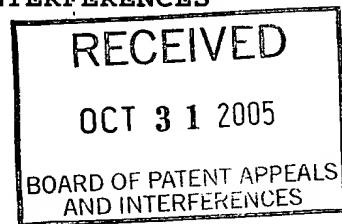
Appellant: Steven P. Den Baars et al.

Examiner: Baumeister, B.

Art Unit: 2815

Title: MULTIPLE ELEMENT, MULTIPLE COLOR SOLID STATE LED

Board of Patent Appeals and Interferences  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450



**TRANSMITTAL OF APPELLANT'S REPLY TO ORDER**

**PURSUANT TO 37 CFR § 41.50(d)**

Sir:

In response to the Order pursuant to 37 CFR §41.50(d) mailed July 29, 2005, enclosed herewith is Appellant's Reply To Order Pursuant to 37 CFR § 41.50(d).

Please charge any fees, if any, to Deposit Account No. 11-1580.

Respectfully submitted,

Date: 10/28/05

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants: Steven P. Den Baars Appeal No. 2005-1528

Serial No. 09/528,262

Examiner: Baumeister, B.

Filed: March 17, 2000

Art Unit: 2815

Docket No. P0149US-7

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Title: MULTIPLE ELEMENT, MULTIPLE COLOR SOLID STATE INTERFERENCES

BOARD OF PATENT APPEALS  
AND INTERFERENCES

APPELLANT'S REPLY TO ORDER PURSUANT TO 37 CFR § 41.50(d)

This reply brief is responsive to an order pursuant to 37 CFR § 41.50(d) issued by the Board of Patent Appeals and Interferences ("the Board") on July 29, 2005. The Board has ordered the appellants to respond to the following requests:

1. Identify, with reference to the specification by page and line numbers, the structure corresponding to the claimed means-plus-function limitation in question;
2. Explain why one of ordinary skill in the art would have known or understood the structure described in the specification as corresponding to the claimed means-plus-function limitation; and
3. Explain, if appropriate, why the claimed oppositely doped layers would not embrace the n-doped and p-doped layers referred to by the examiner.

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Each of these three requests are addressed individually herein below.

1. The specification discloses a structure that corresponds to the claimed means-plus-function limitation in question.

Appellant's claim 30 includes the following means-plus-function limitation:

a means for selectively causing each of said plurality of active layers to emit light alone or in combination with others of said plurality of active layers;

Appellants assert that a structure corresponding to the means-plus-function limitation of claim 30 can be found in the written description of the specification (see page 9, lines 20-31; and page 10, line 7 - page 11, line 7). The written description describes an embodiment of the invention as claimed in claim 30. This particular embodiment is illustrated in Fig. 2.

2. One of ordinary skill in the art would know or understand the structure described in the specification as corresponding to the claimed means-plus-function limitation.

A person of ordinary skill in the art of semiconductor fabrication can ascertain from the written description in the specification the light emitting diode structure that corresponds to this claimed means-plus-function limitation.

On page 9, lines 7-10 a LED 20 is described having three active layers 21, 22 and 23, and in lines 20-21 the

LED 20 is further defined as having three p-type layers 24, 25 and 26. Page 9, lines 21-31 describes that each p-type layer has a respective one of contacts 27, 28, 29. A bias applied to each one of these contacts 27, 28, 29 causes holes to be injected into a respective one of the active layers 21, 22, and 23. An n-typed contact 31 is on the n-type layer 30 and a bias applied to the contact 31 injects electrons into the active layers 21, 22 and 23. It is known that electrons and holes injected into an active region causes the active region to emit light.

On page 10, lines 19-21 the specification goes on to disclose that "by applying a bias to one of the three p-type contacts 27, 28, and 29, the LED 20 can selectively emit red, green or blue light." On page 10, lines 22-25 the specification describes "With a bias applied to n-type contact 31 and two of the three p-type contacts 27, 28, and 29, two colors of light emit from the LED 20 that combine to produce additional colors." Page 9, line 32 to page 10, line 6 operation when a bias is applied to all three contacts is described wherein some of the red light (from the substrate) "will emit from the LED's surface along with green, blue and UV light, all of which will combine to produce white light."

This description provides for a structure that can selectively cause each of a plurality of active layers to emit light alone or in combination with others of said plurality of active layers. This description alone would allow one of ordinary skill in the art to know that the LED 20 in FIG. 2 and this description corresponds to the means-plus-function language at issue.

3. The Kaneko '901 reference shows the n-doped and p-doped layers referred to by the Examiner, but does not teach all of the limitations required by appellant's claims 14, 41 and 42.

The Board has requested that the appellant address whether the claimed oppositely doped layers would embrace the n-doped and p-doped layers referred to by the examiner at pages 7-8 of the Examiner's Answer.

Applicants agree that the oppositely doped layers are embraced n-doped and p-doped layers. Sandwiching an active layer/region between two oppositely doped layers is known in the art.

Appellant respectfully submits, however, that the inquiry is misdirected. It is the structural and functional interplay between the active layer, the oppositely doped layers that is the subject of the claimed inventions. The examiner has correctly identified a disclosure of two oppositely layers in Kaneko '901 (see column 8, lines 57-61 and column 9, lines 24-26). In determining whether claims 14, 41 and 42 are anticipated by Kaneko '901, however, the examiner and the Board should focus on all of the limitations of these claims. As the appellant has argued several times previously, Kaneko '901 does not teach all of these limitations.

For example, Kaneko '901 does not teach doping the substrate "throughout with a plurality of impurities such that said impurities simultaneously absorb the light of said active region and each re-emits a respective color of light." This point has been briefed specifically and thoroughly (see Response to Examiner's Answer at pages 9-11).

Kaneko '901 does not teach all of the limitations of  
appellant's claims 14, 41 and 42, and as a result,  
Kaneko '901 does not anticipate these claims.

Respectfully submitted,

  
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October 28, 2005

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